

Volume 29, Issue 3**Monthly household income volatility in the U.S., 1991/92 vs. 2002/03**

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Abstract

We investigate changes in monthly income volatility in non-elderly households in the U.S. since the early 1990s. Using the Survey of Income and Program Participation (SIPP), we find that monthly income volatility is highest for lower income households, and that it increased substantially for these households between 1992 and 2003. The increase appears to have its roots in the shift of household income away from relatively stable public assistance (AFDC/TANF) benefits and towards earnings. We subject these findings to sensitivity analyses and find similar results. We also find increases in volatility among households with incomes above the poverty line, but these findings are less robust in the face of some sensitivity analyses.

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1. Introduction

In this paper we investigate changes in monthly income volatility for households in the U.S. with a particular focus on low-income households. Drawing on data from the Survey of Income and Program Participation (SIPP) to examine variation in monthly household income, we employ data from both 1991-92 and 2002-03 in order to relate our results to different policy environments. Previous authors have considered fluctuations in household income by focusing on discrete events such as job loss or divorce. While these studies examine important issues, they ignore income volatility that results from other kinds of labor market or life events. Thus, our work is complementary. We measure volatility as the coefficient of variation (CV) of monthly income over a 12-month period, taking into consideration income from all sources.

We find that monthly income volatility is highest for lower income households, and that volatility for these households increased substantially between 1992 and 2003. The increases in volatility were largest for households in deep poverty – those with incomes below 50 percent of the poverty threshold and for a population ‘at risk’ for welfare reciprocity – households headed by a single adult without a high school degree. We also find increases in volatility among households with incomes above the poverty threshold, but these findings are less robust in the face of some sensitivity analyses. We decompose household income volatility and find that the increase in income volatility among poor households has its roots in the shift of household income away from relatively stable public assistance benefits (Aid to Families with Dependent Children or AFDC, and then Temporary Assistance to Needy Families, or TANF) and towards earnings.

Ideally households would smooth consumption by saving during time periods when they experience positive income shocks and by dissaving or borrow during time periods of negative income shocks. However, if households lack perfect information about the future course of their income, have little left over to save in good times or are liquidity constrained and unable to borrow in bad times, then weathering income fluctuations may not be straight-forward. Jappelli (1990) examines data from the Survey of Consumer Finances and finds that roughly 20 percent of the population appears to be liquidity constrained; Jappelli, Pischke, and Souleles (1998) reach similar conclusions. Furthermore, because mean income levels and material well-being of welfare leavers and recipients have risen little since welfare reform (e.g. Corcoran et al., 2007, Blank, 2006, Bloom et al., 2002, Haskins, 2001) we might think that this population might lack the resources to successfully cope with income fluctuations. Monthly income volatility at the household level can have important implications: A rise in volatility for households living near the poverty threshold is likely to increase the frequency with and extent to which they slip below that threshold. Instability of this sort may affect the ability of households to maintain sufficient expenditure levels for fundamentals such as food, housing and medical care. If volatility impedes the ability of lower income households to reliably meet monthly contractual obligations (Gundersen and Gruber, 2001), this may lead to events such as eviction, foreclosure or increased reliance on short-term debt. The policy implications from volatility extend from the possible need to provide a social safety net against such shocks, to the mechanics of actually doing so.

The broader context for considering the volatility of income over time was established by Gottschalk and Moffitt (1994, 2007) with their examination of the annual earnings of men in the

PSID first from the 1970s through the 1980s, and then from the 1970s through 2002. They examine repeated cross-sections over long historical time periods and find evidence of rising transitory variance of annual earnings in the U.S. over this time period. Dynan, Elmendorf and Sichel (2007) similarly find that annual household income among households in the PSID became increasingly volatile over the same time period, and Hertz (2006) reports comparable findings for 1991/92, 1997/98 and 2003/04 using matched CPS samples. In addition, several researchers (Hacker and Jacobs, 2008; Bollinger and Ziliak, 2009) have found an increase in annual income volatility in the U.S. during the 1990s and early 2000s that is particularly sharp among lower income households. To our knowledge, however, there are no studies of monthly household income volatility.

In the sections that follow, we provide an overview of our data and methods, and follow with a discussion of monthly income volatility for non-elderly U.S. households for twelve-month periods in 1991-92 and 2002-03. Comparisons across the two time periods are made in aggregate and for numerous sub-groups. We also decompose the measure of monthly income volatility in each time period into the portions attributable to fluctuations in earned income, in cash and in other income sources. Finally, we conduct a number of sensitivity analyses to eliminate a number of measurement error issues as possible explanations for rising income volatility. We conclude with some comments about the implications of our findings.

2. Data and Methods

We use data from the 1991, 1992 and 2001 panels of the SIPP. We selected panels that bracket major changes in U.S. welfare policy in the late 1990s. To insure comparability and to eliminate possible seasonal factors we use comparable calendar months from both periods. The result is a 12-month data set for each household in each panel. These cover the calendar months October 1991 through December 1992 in the first panels and October 2002 through December 2003 in the second.¹ Both time periods represent relatively comparable points in the business cycle.² We limit our sample to non-elderly (age 18 to 59) household heads. After restrictions related to sample definition, we have a sample of 22,776 household heads in the 1991/92 panel and 18,497 household heads from the 2001 panel.

Household income on the SIPP is defined as all sources of money income before taxes; all income measures are deflated to 1992 dollars using the consumer price index for all urban consumers (CPI-U). The survey is quite comprehensive and includes earned income (wage and salary income from employment), cash transfer payments (e.g. AFDC/TANF, SSI, social security, unemployment benefits, veterans payments), lump-sum and one-time payments (inheritances, insurance settlements, retirement distributions etc.), regular salary or other income from a self-owned business, property income, and interest received on most types of assets.

¹ The 12 months of interviews are spread over a total of 15 months because each SIPP panel is divided into four rotation groups and one-quarter of the interviews are conducted in each calendar month.

² The National Bureau for Economic Research dated March 1991 and November 2001 as business cycle troughs. Thus, the surveys used here commenced 7 months following the trough in the first panel and 13 months following the trough in the second panel. No other business cycle troughs occurred between 1991 and 2001.

Interest accrued on Individual Retirement Accounts, 401(k)s, savings bonds and similar instruments are excluded from the calculation of household income.³

Pre-tax income as defined here does *not* include benefits received through the Earned Income Tax Credit (EITC). Since the SIPP reports EITC benefits on a calendar (tax) year basis, we cannot identify the timing or frequency of any payments received and are unable to include EITC in calculations of monthly income volatility. While EITC recipients have the option of taking an advance payment option to receive incremental payments as a ‘refund’ on their paychecks, Hotz and Scholz (2001) report that in 1998 only 1.1 percent of recipients took advantage of this option. Instead, 92 percent of EITC payments are received between February and May of each year as a lump sum payment or tax credit (Barrow and McGranahan, 2000). Thus, the inclusion of EITC would increase measured income volatility in both time periods. Furthermore, because the EITC was significantly expanded between 1991 and 1996 (Forman, 2005) its inclusion would be likely to add to both the increase in volatility over time and to the difference in volatility we find between lower and higher income households.⁴

Most household characteristics are defined for the twelfth interview month in the time span discussed above. Longitudinal measures, such as annual household income and income volatility, are defined for the 12 months up to and including month 12. We measure volatility as the CV of monthly income over those twelve months. The CV is ideally suited to capture the broad notion of volatility that we are interested in: Discrete household event measures are unlikely to capture the full range of conditions that might subject household income to fluctuation; measures of shock alone do not capture recurring income fluctuations. Unlike the variance, the CV is scale insensitive; the CV also reflects increases in variation in direct proportion.

3. Results

In Table 1, we present the median CV of income over the 12-month period for all households in the sample, as well as for a variety of sub-groups. Results are shown for the both the 1991/92 panel and the 2001 panel. Income volatility is higher for lower-income households, for single-parent households, for those receiving either welfare or Food Stamp assistance, for renters, for smaller households and for those in which the household head did not complete high school. In particular, households living below the poverty threshold in the 1991/92 panel had volatility that was 61 percent higher than those above the poverty threshold (29.5 vs. 18.3).⁵ Single-parent households had 8 percent higher income volatility than dual-parent households (23.8 vs. 22.0).

³ Food Stamp and WIC benefits is not included in this definition of income. As a check on the robustness of our findings, we repeat the analyses below including the cash value of Food Stamp and WIC benefits in income with no substantive change in our findings.

⁴ More generally, while pre-tax income is more indicative of market outcomes, post-tax income is the preferred measure of well-being. However, because income tax is an annual liability and can be paid either through monthly withholding or as an annual lump-sum, the effect of income taxation on monthly income volatility is difficult to establish.

⁵ We employ the U.S. Census Bureau poverty thresholds for 1992 and 2003. (<http://www.census.gov/hhes/www/poverty/threshld.html>, accessed August 22, 2009).

Comparing volatility measures across the two panels we see that income volatility has risen over time. While mean household monthly income levels changed little during this time period,⁶ the median CV for the whole sample rose from 18.7 to 20.8 – an increase of 11 percent. The increase in income volatility occurred among different family types, across all races, across poor and non-poor households, in households with and without Food Stamps or AFDC/TANF and so on. However, this increase is greatest among lower-income households. For households in poverty, volatility increased from 29.5 to 38.6 – an increase of 31 percent, while for non-poor households the increase was less substantial (11 percent). The increase in volatility was greatest for the poorest households, those with income below 50 percent of the poverty threshold. In this group, volatility increased 88 percent.

Because policies regarding the receipt of cash and food assistance changed dramatically in the late 1990s, a direct comparison of AFDC/TANF or Food Stamp recipients across the two panels entails comparing households subject to distinctly different policy processes and selection mechanisms. For instance, in this sample, the share of households receiving cash assistance dropped from 4.7 percent to 1.4 percent from the first to the second time period. Based on the literature on the welfare population before and after reform, we suspect that the composition of households receiving cash assistance changed considerably between the two panels. In order to generate a comparable group of individuals in both panels who are likely to have been affected by the changes in welfare policy, we instead examine households who might be ‘at-risk’ for welfare participation. We define these to be families headed by single parents who have not graduated from high school and who are living with their children with no other adults present. The measured income volatility for this ‘welfare at-risk’ group jumps dramatically between the two time periods. In the 1991/92 panel, there is a relatively small difference in income volatility levels between the households deemed ‘at risk’ for welfare and those who are not (22.6 versus 18.7). In the second time period, that gap has grown considerably. The income volatility measure for the ‘at-risk’ households rises to 36.6, a 62 percent increase, while for other households it rose only 11 percent.

To examine the sources of increased volatility, we decompose total household income into three components: earnings, AFDC/TANF income, and all other income. Panel A of Table 2 reports the CV for each of these components of income for the 1991/92 and 2001 SIPP panels. Among all households in the sample, we find that earnings volatility rose little, while volatility of AFDC/TANF and all other income actually declined between the two time periods. Thus, the increase in volatility for total household income must be explained by a compositional shift away from less volatile sources of income (AFDC/TANF) to more volatile sources (earnings and all other income). The share of income coming from each component is reported in Panel B of Table 2. Indeed, among all households, the share of total income derived from earnings rose from 84 percent to 87 percent, while the share derived from welfare income fell from 3 percent to 1 percent. These changes are much more pronounced for lower-income and welfare at-risk households. For welfare at-risk households, earnings as a share of total income rose from 37 to 58 percent, while welfare payments dropped from 40 to 14 percent of income. Other income as a

⁶ Across households of all income levels, mean household income for month 12 of the study period rose 11 percent over the 11 years between the two panels, from \$3,408 to \$3,792; among households below the poverty threshold mean monthly income changed little (\$934 in 1991/92 and \$935 in 2002/03).

share of the total rose somewhat, from 23 to 28 percent. Results for households in poverty are similar.

The net effect of changes in both the volatility of income components and of the shares of income components can be more formally summarized with a variance decomposition proposed by Shorrocks (1982). Shorrocks shows that the share of the CV squared (and similarly, the share of the variance) attributable to the k th element of income is equal to:

$$S^k = \text{Cov}(Y^k, Y) / \text{Var}(Y), \quad (1)$$

where Y is total income and Y^k is its k th element. In the application here, we compute S^k for each household based on the variance of their total income over the 12 months included and the covariance between income components and total income over those 12 months. Averages across households are reported in Panel C of Table 2.

The Shorrocks decomposition suggests that earnings are the largest contributor to income volatility.⁷ Furthermore, across all households, the share of volatility attributable to earnings rose over this period (from 88 to 90 percent), with a corresponding drop in the share attributable to welfare payments and from other income. An examination of the different household types and income levels again indicates that the largest changes occurred among households below the poverty threshold and those at-risk for welfare. For example, among those at-risk for welfare, the share of volatility attributable to earnings rose from 55 to 68 percent, while the share from AFDC/TANF dropped from 76 to 7 percent. Note that for welfare at-risk households in the first panel, ‘other income’ makes a negative contribution to volatility. This indicates that ‘other income’ varies negatively with total income, thereby exerting a stabilizing influence on the total.

3.1 Sensitivity Analysis

The SIPP is known to have a considerable amount of imputed data, as well as to suffer from ‘seam bias’. If changes in procedure from one implementation of the SIPP to the next altered either of these data characteristics, then this could be a source of the differences we find across the two time periods. We experiment with a number of robustness checks to see whether or not SIPP procedures could account for the increases in volatility that we find here.

SIPP documentation identifies a number of differences in the imputation routines used before and after changes made to the survey implementation in 1996 (U.S. Census Bureau, 2001). To address this issue, we repeat our calculations under three alternate scenarios. In the first case, we eliminate all households for which any component of income was imputed for any month of the periods studied. This involves eliminating a household from analysis if any of 20 separate components of income are imputed for any household member in any of the 12 months in the first time period, and if any of 70 income components are imputed in the second time period.⁸ This reduces the sample size by half for the 1991/92 panel and by two-thirds for the 2001 panel. In the second scenario, we use a somewhat less strict restriction – we only eliminate households

⁷ This is consistent with findings by Newman (2006).

⁸ Both SIPP panels employ the same definition of total household income, however, more detailed income components are reported in the later panel.

for whom a component of earnings was imputed for any household member for any month.⁹ In the third scenario, we eliminate all households for which a ‘Z-type’ imputation was performed for any household member for one or more months of data in our time periods.¹⁰

Our finding of a substantial increase in volatility among very poor households is robust to each of these three sensitivity checks. On the other hand, our finding of a smaller increase in volatility for all households is less robust. In the case of the first two restrictions on imputed data (no imputed income or no imputed earnings data), the increase in volatility over time across all households is diminished to little more than a 1 percent increase. When only z-type imputations are eliminated, the increase in volatility for all households remains a relatively robust 11 percent.

The SIPP is administered every fourth month with information collected retrospectively for the four preceding months (with four months being considered a ‘wave’). While this affords a shorter period for recall bias than surveys that are conducted on an annual basis, this interview structure imbues SIPP data with a degree of ‘seam bias’ – items such as self-reported income are more consistent *within* interview waves than *between* them. Thus, reported changes tend to be much larger between two months if those months cross waves than if they are within the same interview wave. If one calculates the median absolute percentage change in income from one month to the next, this results in a characteristic ‘saw-tooth’ pattern – the magnitude of the percentage changes between adjoining months in different waves is significantly larger than between months within the same wave. Furthermore, a comparison of the percent changes in month 1 of waves 2 and 3 with the percent changes in other months suggests that the relative degree of seam bias may be higher in the second panel than the first.^{11, 12}

Other authors have noted that seam bias is likely to alter the measured variance of any time series that span two or more interview waves (e.g. Newman, 2006). However, it is unclear *a priori* whether seam bias is likely to increase or decrease the measured variance (or CV) in such a case. The total variance can be computed as the sum of the *between*- and the *within*-wave variance. By definition, seam bias decreases within-wave variance (because reported values within one wave are more alike than they would be in the absence of bias); the total effect will only be positive if seam bias *increases* between-wave variance by a larger amount. It is easy to construct examples in which the sum of these two effects is either positive or negative.

⁹ For each household in each month, four potential sources of either wage and salary or self-employment earnings are reported for each household member over the age of 16.

¹⁰ A SIPP ‘Z-type’ imputation is the case where an entire missing interview record for a respondent is replaced with actual data from another respondent who is matched on a variety of demographic characteristics.

¹¹ Some changes in survey methodology were introduced in 1996, in between the two SIPP panels used here. These changes included the introduction of Computer Aided Personal Interviewing (CAPI) and were in part intended to reduce the degree in seam bias (U.S. Census Bureau, 2001). Doyle, Martin and Moore (undated), however, note that it does not appear that the hoped for reduction in seam bias occurred after 1996.

¹² It is interesting to note that seam bias is, in a sense, a function of volatility in the underlying series. To the extent that the true values of a data series do not change over time, this kind of reporting bias will not occur. Thus, if monthly income volatility increases over time, this could itself be a source of an increase in seam bias between the two panels.

Nevertheless, we acknowledge that seam bias could potentially have a systematic impact on income volatility if the degree of seam bias is either more or less for lower-income or higher-income households or has changed over time (which it appears to have). In an effort to gauge the importance of seam bias for our results we take two approaches. In the first approach, we reestimate the CVs of monthly income for each household in our samples, limiting the calculation to the last month in each interview wave – the months in which income is most likely to be accurately reported. This analysis yields results that are essentially the same as we reported in Table 1.

In our second approach, we follow Newman (2006) in applying exponential smoothing to remove the effects of seam bias from monthly household income. For each household in the sample, we compute an adjusted series:

$$S_t = \alpha Y_t + (1-\alpha) S_{t-1} \quad (2)$$

where Y_t is the observed monthly household income in month t , S_t is the exponentially smoothed income and α is the smoothing parameter which lies between 0 and 1.¹³ We then calculate the CV of the smoothed series for each household in the sample. This measure, purged of the effects of seam bias, is a pure measure of volatility that is unrelated to the presence of seam bias. The value of α is arbitrary and we experiment with alternative values as a sensitivity check. For values of α close to one, more weight is placed on the contemporaneous observation of monthly income (indeed, $\alpha=1$ is identical to our base case – the smoothed series would be equal to the observed series). When α is close to zero, less weight is placed on the contemporaneous observed value of income and more on the observed values for previous months.

We computed the CVs of the smoothed data series for values of $\alpha = 0.1, 0.2$ and 0.3 and found that each of these smoothing routines virtually eliminates the seam bias observed in the data. The levels of CVs calculated on smoothed income data are, of course, uniformly lower than those calculated from unadjusted data. However, the pattern of results is consistent with the pattern reported in Table 1 – income volatility has risen over time for all households, with larger increases for low-income households, and income volatility is considerably higher for lower-income than for higher-income households.¹⁴

4. Discussion

We find that monthly income volatility is considerably greater for lower-income than for higher-income U.S. households and that there was a substantial increase in income volatility for households in deep poverty and those at risk for welfare reciprocity. This result holds even in the face of checks for robustness. We also find a smaller increase in volatility for all households, however this result is sensitive to the degree to which imputed data is included in the analysis. In order to examine the sources of increased income volatility for these households, we decompose pre-tax cash income into three components: earned income, AFDC/TANF income and all other income. Our analysis suggests that the large rise in volatility among the poorest

¹³ The smoothed series begins with month 2 and the starting value is estimated as $S_2 = \alpha Y_2 + (1-\alpha) Ybar$, where $Ybar$ is the mean of the observed household income series. We experimented with an alternate specification for the starting value ($S_2 = \alpha Y_2 + (1-\alpha) Y_1$) and found similar results.

¹⁴Using the 1996 SIPP and applying exponential smoothing techniques, Newman (2006) also finds very similar results regarding differences in monthly income volatility by household income level.

households and among welfare at-risk households is primarily a result of a shift in the composition of income from welfare payments to earnings and other income sources.

These findings suggest that the nexus of income level, income volatility, and access to a social safety net may be more important to the well-being of lower-income households than previously recognized in this and related literatures. Various aspects of these relationships deserve continued attention. In particular, the rise in volatility for households living with very low incomes suggests that these households are now more likely to experience repeated bouts of economic deprivation due to either more frequent or more extreme negative income shocks. While theory might suggest that households with perfect information and access to capital markets should engage in saving, dissaving and borrowing in order to smooth consumption over time, there are reasons that this is not always the case. Mean household income may be too low to allow for savings, households may have time inconsistent intertemporal preferences with regard to current consumption and future savings, or they may be liquidity constrained or only have access to high-priced loans (e.g. payday or car title loans). Furthermore, eligibility for many types of assistance is based on strict limits on asset accumulation; program participation itself may discourage the kind of household saving behavior needed to weather negative income shocks. Thus, increased volatility may lead to increased episodic material deprivation.

References

- Barrow, L. and L. McGranahan (2000) “The Effects of the Earned Income Tax Credit on the Seasonality of Household Expenditures” *National Tax Journal* LIII, 1211-1243.
- Bloom, D., M. Farrell, and B. Fink (2002) *Welfare Time Limits: State Policies, Implementation, and Effects on Families*, Manpower Demonstration Research Corporation: New York.
- Blank, R. M. (2006) “What Did the 1990s Welfare Reforms Accomplish”, in *Public Policy and the Income Distribution* by A. Auerbach, D. Card and J. Quigley, Eds., Russell Sage Foundation: New York.
- Bollinger, C., Gonzalez, L. and J. P. Ziliak (2009) “Welfare Reform and the Level and Composition of Income.” In *Welfare Reform and its Long-Term Consequences for America’s Poor*, James P. Ziliak, ed, Cambridge, UK: Cambridge University Press, 59-103.
- Corcoran, M., Heflin, C. and K. Siefert (2007) “Work Trajectories, Income Changes and Food Insufficiency in a Michigan Welfare Population” *Social Service Review* 81, 3–25.
- Dynan, K., D. W. Elmendorf, and D. E. Sichel (2008) “The Evolution of Household Income Volatility” The Federal Reserve Board, Finance and Economics Discussion Series: 2007-61.
- Doyle, P., E. Martin, et al. (undated) “Methods Panel to Improve Income Measurement in the Survey of Income and Program Participation”, U.S. Census Bureau, Demographic Surveys Division.
- Forman, J.B. (2005) “Earned Income Tax Credit” in *The Encyclopedia of Taxation and Tax Policy*, Second Edition, by J.J. Cordes, R.D. Ebel, and J.G. Gravelle, Eds., Urban Institute Press: Washington DC.
- Gottschalk, P. and R. Moffitt (1994) “The Growth of Earnings Instability in the U.S. Labor Market” *Brookings Papers on Economic Activity* 2, 217-72.
- Gottschalk, P. and R. Moffitt (2007) “Trends in Earnings Volatility in the US: 1970-2002.” Paper presented at the Meetings of the American Economic Association, January 2007.
- Gunderson, C. and J. Gruber (2001). “The Dynamic Determinants of Food Insufficiency”, USDA/Economic Research Service/Food and Rural Economics Division, Washington, D.C.
- Hacker, J.S. and E. Jacobs (2008) “The Rising Instability of American Family Incomes, 1969-2004 Evidence from the Panel Study of Income Dynamics” Economic Policy Institute, Briefing Paper #212.
- Haskins, R. (2001) “Effects of Welfare Reform on Family Income and Poverty” in *The New World of Welfare* by R. Blank and R. Haskins, Russell Sage: New York.

- Hertz, T. (2006) "Understanding Mobility in America," Center for American Progress Discussion Paper.
- Hotz, V.J. and J.K. Schulz (2003) "The Earned Income Tax Credit," in *Means-Tested Transfer Programs in the U.S.*, by R. Moffitt, Ed., Chicago: University of Chicago Press.
- Jappelli, T. (1990) "Who is Credit Constrained in the U.S. Economy?" *Quarterly Journal of Economics* 105, 219-234.
- Jappelli, T., J. Pischke, and N.S. Souleles (1998) "Testing for Liquidity Constraints in Euler Equations with Complementary Data Sources," *Review of Economics and Statistics* 80, 251-262.
- Newman, C. (2006) "The Income Volatility See-Saw: Implications for School Lunch", USDA, Economic Research Report No. ERR-23.
- Shorrocks, A. F. (1982) "Inequality Decomposition by Factor Components." *Econometrica* 50, 192-212.
- U.S. Census Bureau. (2001) *Survey of Income and Program Participation Users Guide (Supplement to the Technical Documentation)*, Third Edition, Washington DC.

Table 1. Income Volatility^a

	1991/92 Panel			2001 Panel		
	All Households	Households below the poverty line	Households above the poverty line	All Households	Households below the poverty line	Households above the poverty line
All Households	18.7	29.5	18.3	20.8	38.6	20.3
By HH inc as pct of poverty level						
below 50 percent	36.0			67.7		
between 50 and 100 percent	28.0			32.0		
between 100 and 150 percent	24.5			27.5		
over 150 percent	18.0			20.1		
Welfare 'at-risk' population (single parents, no HS diploma, no other adults in household)	22.6			36.6		
Not welfare 'at-risk'	18.7			20.8		
Did not complete HS	21.6	27.4	20.7	24.4	29.7	23.7
HS graduate	18.4	32.7	18.1	20.5	42.6	20.1
TANF/AFDC	24.7	21.1	28.7	35.3	37.4	30.2
No TANF/AFDC	18.6	34.2	18.2	20.7	38.8	20.3
Food Stamp Reciprocity	26.3	23.0	29.2	32.0	34.0	31.6
No Food Stamp Reciprocity	18.4	41.8	18.1	20.5	43.9	20.1
Disable person in HH	20.1	25.5	19.7	21.3	21.1	21.3
No disabled person in house	18.4	33.3	18.0	20.8	47.3	20.2
Homeowners	17.2	36.4	16.9	19.3	39.6	19.1
Renters	22.0	27.5	21.5	25.0	38.3	23.9
Household Composition						
Wife and husband with child(ren)	17.5	32.3	17.2	19.5	39.2	19.0
Single persons with child(ren)	22.4	23.8	22.0	26.8	41.5	24.0
No children	19.0	37.6	18.7	20.8	36.1	20.6
Race/Ethnicity						
Non-Hispanic white	18.7	31.5	18.3	20.4	39.4	20.1
Non-Hispanic black	18.6	26.1	18.0	23.2	31.3	22.4
Hispanic	24.3	34.2	23.6	29.5	49.6	26.4
Non-Hispanic other	20.0	27.4	19.4	21.1	69.0	20.5
<u>Household Size</u>						
1 person	20.6	36.4	20.2	21.8	29.1	21.5
2 persons	19.2	31.5	19.0	20.7	44.2	20.3
3 persons	18.1	29.7	17.7	20.9	48.5	20.3
4 persons	17.7	28.4	17.3	20.1	43.3	19.5
5 persons	18.7	28.7	17.9	20.1	33.2	19.7
6 persons	18.9	29.1	17.8	22.2	37.1	20.6
7 or more persons	19.4	23.5	18.9	23.9	34.0	23.2
N	22,776	1,887	20,889	18,497	1,789	16,708

^a Measured as the median coefficient of variation (multiplied by 100) of total household income over 12 months. See text for details.

Table 2. Components of Income Volatility, by Income Level and Household Type

	All Households		Welfare 'At-Risk'		Not Welfare 'At-Risk'		Household Income Relative to Poverty Line:							
							< 50%		50-100%		100-150%		150+	
	1991/92 Panel	2001 Panel	1991/92 Panel	2001 Panel	1991/92 Panel	2001 Panel	1991/92 Panel	2001 Panel	1991/92 Panel	2001 Panel	1991/92 Panel	2001 Panel	1991/92 Panel	2001 Panel
Panel A: Mean Coefficient of Variation (x100) over 12 months:														
Total Income	26.8	30.8	29.9	52.8	26.7	30.4	52.3	77.9	36.0	44.1	32.4	36.2	24.8	27.5
Earnings	32.7	34.3	50.9	64.0	32.4	33.9	58.0	70.5	59.5	56.5	46.3	43.1	28.8	30.6
AFDC/TANF	4.2	2.3	22.7	24.2	3.9	2.0	14.2	13.3	16.5	9.6	9.7	5.2	2.6	1.1
Other Income	67.0	54.7	61.4	55.7	67.1	54.7	73.1	43.6	37.8	42.4	64.1	47.1	69.1	56.6
Panel B: Mean Percent of Total Annual Income from:														
Earnings	84%	87%	37%	58%	84%	88%	23%	45%	47%	57%	71%	76%	89%	92%
AFDC/TANF	3%	1%	40%	14%	2%	0%	36%	12%	17%	3%	3%	0.6%	0.5%	0.1%
Other Income	14%	12%	23%	28%	14%	12%	41%	43%	36%	40%	26%	23%	10%	8%
Panel C: Shorrocks Decomposition - Percent of Income Volatility from:														
Earnings	88%	90%	55%	68%	88%	90%	37%	54%	62%	65%	85%	83%	91%	94%
AFDC/TANF	2%	1%	76%	7%	1%	1%	57%	21%	4%	1%	0.9%	0.4%	0.1%	0.0%
Other Income	10%	9%	-31%	25%	11%	9%	6%	25%	34%	34%	14%	17%	9%	6%
N	22,776	18,497	371	263	22,405	18,234	612	633	1,275	1,156	1,567	1,335	19,322	15,373